



**MISSOURI DEPARTMENT OF TRANSPORTATION  
MATERIALS ENGINEERING  
Jefferson City, Missouri**

**Test Method  
MoDOT T1  
ALKALINITY OF GLASS FIBER MAT MATERIALS**

**1.0 SCOPE.**

This test method covers the procedure for determining the alkalinity of glass fibers and glass fiber mat materials.

**2.0 EQUIPMENT**

- a. Analytical Balance capable of weighing to accuracy of 0.0001 grams.
- b. 250 ml Erlenmeyer flask with 24/40 T glass joint.
- c. Burette, 10 ml. with .02 ml subdivisions.
- d. Filtration rack with 75 mm pyrex funnels.
- e. 30 cm air condenser with 24/40 T glass joint.
- f. 12.5 cm No. 41 Whatman filter paper.
- g. Methyl purple indicator, pH range 4.4-6.0.
- h. N/50 sulfuric acid.

**3.0 SPECIMENS**

- a. Glass Fiber: Specimens shall be taken from at least four representative areas and combined to form a sample weighing approximately 5 grams.
- b. Glass Fiber Mat: Four specimens shall be taken from one square foot of sample material by means of a cork borer approximately 1" in diameter. The borings shall be made 4" apart and parallel to the material so that each boring will include portions of both surfaces of the sample.

**4.0 PROCEDURE**

- a. Weigh a 1 gram test specimen to an accuracy of .0001 grams and place in a clean 250 ml pyrex Erlenmeyer flask.
- b. Add 100 ml of boiling distilled water and attach the air condenser the flask.
- c. Place the flask with condenser on the hot plate. Adjust the temperature so that the liquid is heated almost to boiling.



d. After simmering for a three hour period, filter and collect the filtrate in a clean 250 ml Erlenmeyer flask. Wash the residue with three portions of 25 ml of hot distilled water, allowing each portion drain.

e. Cool the filtrate, add three drops of methyl purple indicator and titrate to a permanent red end point with N/50 sulfuric acid.

f. Run a blank determination on the same amount of distilled water in the same manner and correct for any alkalinity shown.

g. Calculations:

$$\% \text{ Na}_2\text{O} = \frac{\text{Normality of H}_2\text{SO}_4 \times \text{ml of H}_2\text{SO}_4 \times 0.031 \times 100}{\text{Weight of Sample}}$$

## 5.0 REPORT

The laboratory report shall contain the following:

- a. Description of sample
- b. Test results vs. specification requirements
- c. Remarks